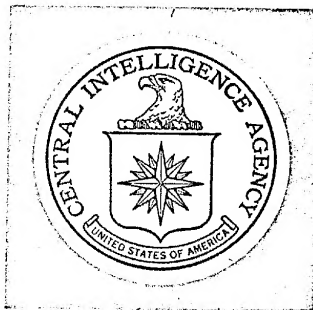


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DIRECTORATE OF  
INTELLIGENCE

# Intelligence Memorandum

*The Status of North Vietnam's  
Petroleum Storage Facilities as of 25 May 1967*

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CENTRAL INTELLIGENCE AGENCY  
Directorate of Intelligence  
26 May 1967

## INTELLIGENCE MEMORANDUM

The Status of North Vietnam's Petroleum Storage  
Facilities as of 25 May 1967

Summary

The air campaign against North Vietnam's petroleum storage facilities has destroyed about 85 percent of the 128,000 tons of major storage capacity existing when the Rolling Thunder program started. In addition over 5,000 tons of storage capacity at dispersed sites has been destroyed.

The strikes have increased the cost and difficulty of importing and distributing petroleum but have not been effective in significantly reducing North Vietnam's capability to maintain petroleum supplies. North Vietnam has developed a dispersed storage system of tank sites and drums with an estimated capacity of between 65,000 and 80,000 tons. Petroleum supplies are being maintained at levels adequate to meet requirements for a period of 100 to 120 days.

North Vietnam has made no effort to restore any of the major bomb damaged facilities. Moreover, it is unlikely to do so as long as the bombings continue. If reconstruction were attempted, the time required would vary from as little as seven days to as much as 180 days. The reconstruction programs would, however, be dependent on foreign technical assistance and materials.

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Effects of Air Strikes on Petroleum Storage Facilities

1. At the start of the Rolling Thunder program in February 1965, the North Vietnamese had 13 fixed petroleum storage facilities--with a combined capacity of about 128,000 metric tons--

Through 25 May 1967 a total of 75 strikes against these facilities had destroyed about 109,000 ton capacity or 85 percent of the total. In addition over 5,000 tons of storage capacity at dispersed sites has been destroyed.

2. Six storage facilities suffered a loss of 100 percent of their storage capacity. These were the facilities at Hanoi, Nam Dinh, Do Son, Phu Qui, Phu Van, and Duong Nam. The remaining seven facilities have a combined residual storage capacity of about 18,000 tons.

3. The air strikes against petroleum storage facilities undoubtedly have been effective when measured in terms of storage capacity and petroleum destroyed. The strikes were also effective in increasing the cost and difficulty of importing and distributing petroleum. They have not, however, been effective in significantly reducing North Vietnam's capability to maintain petroleum supplies. This capability stems principally from the development of dispersed bulk oil storage facilities even before the extensive attacks against

facilities began. The use of 55 gallon drums has given North Vietnam additional storage capacity, and has increased the flexibility of its petroleum storage and distribution system.

4. North Vietnam now has more than 100 dispersed petroleum storage tank sites with a total estimated capacity of between 30,000 and 40,000 tons. The storage capacity of North Vietnam's inventory of drums is estimated at between 35,000 and 40,000 tons. In addition, there is an indeterminate amount of "floating storage capacity" represented by oil barges, rail tank cars, tank trucks, and a newly assigned small tanker for use in North Vietnamese waters. North Vietnam

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currently has less bulk storage capacity than it had in the spring of 1966, but its overall position is improved as compared with the summer of 1966, when the bombing reached its peak effectiveness.

5. There is no evidence that the bombing of petroleum targets has seriously weakened the economy, produced significant shortages of petroleum, or diminished North Vietnam's capability to support military activities or the infiltration of men and supplies into Laos and South Vietnam. The estimated level of petroleum supplies in North Vietnam at the end of April 1967, for example, was at essentially the same levels as it was at the beginning of 1966, as shown in the following tabulation:

<u>Date</u>	<u>Stocks (1,000 tons)</u>
1 January 1966	46 to 71
28 June 1966	78 to 103
31 December 1966	52 to 56
30 April 1967	54 to 69

This volume of petroleum stocks is estimated to be adequate to satisfy current consumption for a period of 100 to 120 days.

#### Restoration of Damaged Facilities

6. The North Vietnamese have made no effort to restore any of the 13 fixed petroleum storage facilities [redacted] apparently because of the effectiveness of their countermeasures to offset the effects of the bombing. The relative invulnerability of the dispersed tank sites and drums make it improbable that bombing, at its current levels and with present types of attack, will significantly reduce the North Vietnamese capability to store and distribute petroleum.

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7. If the North Vietnamese were to attempt to restore their fixed petroleum facilities, which is unlikely, the time required for reconstruction, assuming materials and labor have arrived on site, would vary from as little as seven days to as much as 180 days, as shown in the table. The maximum time would be required for the two major facilities at Haiphong and Hanoi. In all cases a reconstruction program would be dependent on foreign technical assistance and materials.

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North Vietnam: Physical Damage to Petroleum Storage  
Facilities and Estimated Restoration Times

<u>Terminal</u>	<u>Capacity Destroyed</u> <u>Oil Tons a/</u> <u>(thousands)</u>	<u>Number</u> <u>of</u> <u>Tanks b/</u>	<u>Restoration</u> <u>Time Required</u> <u>for Reconstruction</u> <u>(days)</u>
Phu Van	0.9	3	10 - 30
Haiphong	40.1	34	90 - 180
Hanoi	30.6	32	90 - 180
Vinh	6.6	5	20 - 60
Nam Dinh	11.0	7	20 - 60
Nguyen Khe	2.5	10	60 - 120
Ha Gia	2.2	4	10 - 30
Bac Giang	0.7	1	7 - 21
Do Son	2.9	2	7 - 21
Viet Tri	1.4	4	20 - 60
Phu Qui	7.6	9	60 - 120
Duong Nham	4.1	5	30 - 90
Can Thon	<u>0.8</u>	<u>40</u>	90 - 120
 TOTAL	 111.0	 156	

a. This corresponds to the amounts of oil that could be stored in the capacity destroyed.

b. This corresponds to the number of tanks of standard Soviet design and capacity required to replace a similar (but not identical) number of tanks destroyed to provide the volume of storage lost.

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